

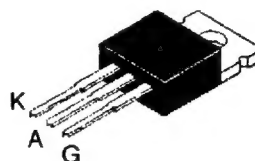
## FAST SWITCHING SCR

### FEATURES

- $I_{T(RMS)} = 8A$
- $V_{DRM} = 200V$  to  $800V$
- $t_q = 20\mu s$  max

### DESCRIPTION

The F0810xH series of SCRs uses a high performance MESA GLASS PNP technology. These parts are intended for high frequency switching applications.



**TO220**  
**non-insulated**  
 (Plastic)

### ABSOLUTE RATINGS (limiting values)

Symbol	Parameter		Value	Unit
$I_{T(RMS)}$	RMS on-state current (180° conduction angle)	$T_c = 95^\circ C$	8	A
$I_{T(AV)}$	Average on-state current (180° conduction angle)	$T_c = 95^\circ C$	5.1	A
$I_{TSM}$	Non repetitive surge peak on-state current ( $T_j$ initial = $25^\circ C$ )	$t_p = 8.3$ ms	88	A
		$t_p = 10$ ms	80	
$I^2t$	$I^2t$ Value for fusing	$t_p = 10$ ms	32	$A^2s$
$di/dt$	Critical rate of rise of on-state current $I_G = 100$ mA $di_G/dt = 1$ A/ $\mu s$ .		100	A/ $\mu s$
$T_{stg}$ $T_j$	Storage and operating junction temperature range		- 40, + 150 - 40, + 125	$^\circ C$
$Tl$	Maximum lead temperature for soldering during 10s at 4.5mm from case		260	$^\circ C$

Symbol	Parameter	Voltage				Unit
		B	D	M	N	
$V_{DRM}$ $V_{RRM}$	Repetitive peak off-state voltage $T_j = 125^\circ C$	200	400	600	800	V

## THERMAL RESISTANCES

Symbol	Parameter	Value	Unit
Rth(j-a)	Junction to ambient	60	°C/W
Rth(j-c)	Junction to case for DC	3	°C/W

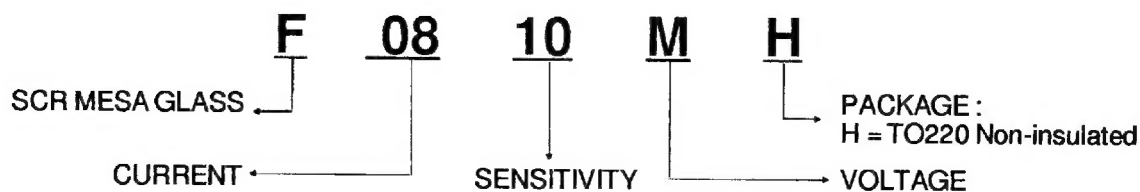
### GATE CHARACTERISTICS (maximum values)

**$P_{G(AV)} = 0.5\text{ W}$     $P_{GM} = 2\text{ W (tp} = 20\text{ }\mu\text{s)}$     $I_{GM} = 2\text{ A (tp} = 20\text{ }\mu\text{s)}$**

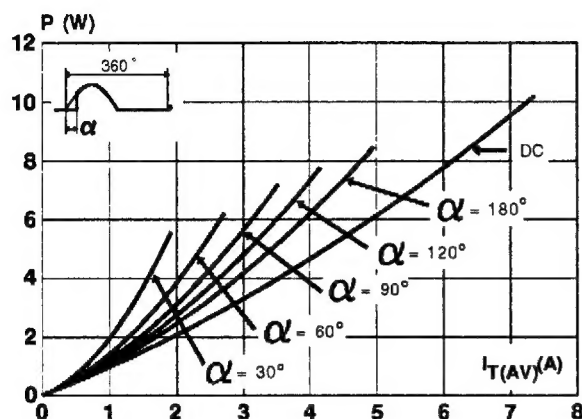
## ELECTRICAL CHARACTERISTICS

Symbol	Test Conditions			Sensitivity	Unit
				10	
$I_{GT}$	$V_D=12V$ (DC) $R_L=33\Omega$	$T_j=25^\circ C$	MIN	10	mA
			MAX	25	
$V_{GT}$	$V_D=12V$ (DC) $R_L=33\Omega$	$T_j=25^\circ C$	MAX	1.5	V
$V_{GD}$	$V_D=V_{DRM}$ $R_L=3.3k\Omega$	$T_j=125^\circ C$	MIN	0.2	V
$t_{gt}$	$V_D=V_{DRM}$ $I_{TM}=3 \times I_{T(AV)}$ $di_G/dt=0.8A/\mu s$ $I_G=90mA$	$T_j=25^\circ C$	TYP	2	$\mu s$
$I_H$	$I_T=250mA$ Gate open	$T_j=25^\circ C$	MAX	75	mA
$I_L$	$I_G=1.2 I_{GT}$	$T_j=25^\circ C$	MAX	150	mA
$V_{TM}$	$I_{TM}=16A$ $t_p=380\mu s$	$T_j=25^\circ C$	MAX	2	V
$I_{DRM}$ $I_{RRM}$	$V_D=V_{DRM}$ $V_R=V_{RRM}$	$T_j=25^\circ C$	MAX	5	$\mu A$
		$T_j=110^\circ C$	MAX	1.5	mA
$dV/dt$	$V_D=67\%V_{DRM}$ Gate open	$T_j=110^\circ C$	MIN	300	$V/\mu s$
$t_q$	$I_{TM}=3 \times I_{T(AV)}$ $V_R=35V$ $di/dt=25A/\mu s$ $t_p=100\mu s$ $dV/dt=25V/\mu s$ $V_D=67\%V_{DRM}$	$T_j=110^\circ C$	MAX	20	$\mu s$

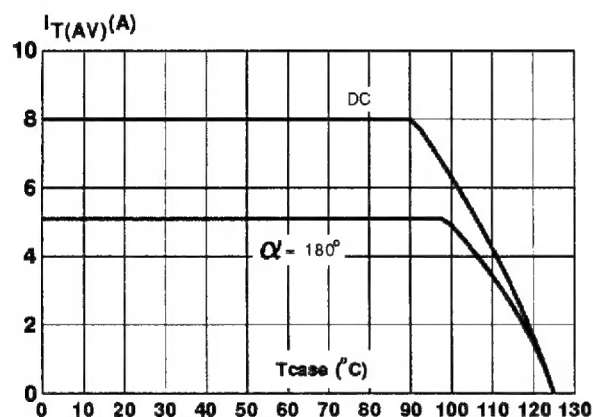
## ORDERING INFORMATION



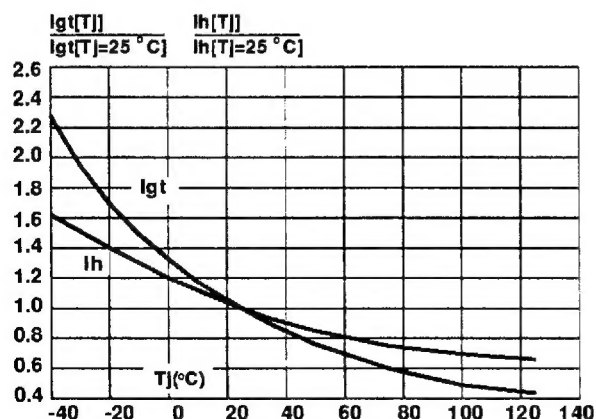
**Fig.1 :** Maximum average power dissipation versus average on-state current.



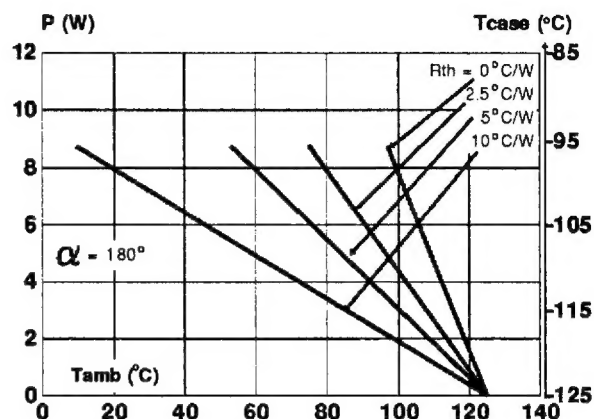
**Fig.3 :** Average on-state current versus case temperature.



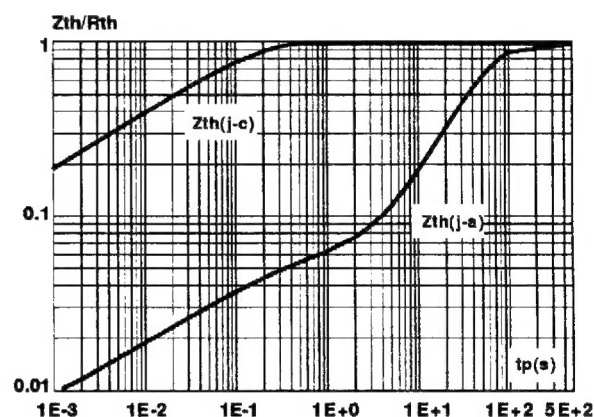
**Fig.5 :** Relative variation of gate trigger current and holding current versus junction temperature.



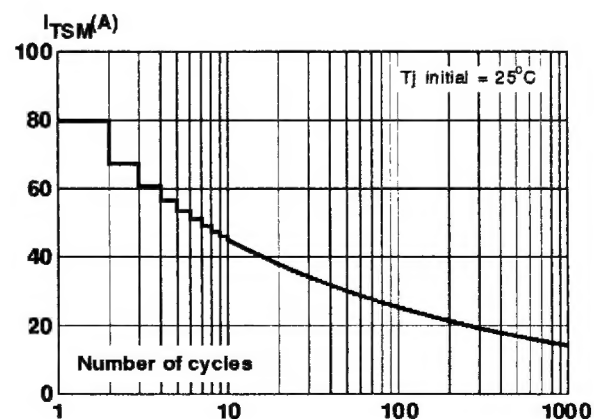
**Fig.2 :** Correlation between maximum average power dissipation and maximum allowable temperature ( $T_{amb}$  and  $T_{case}$ ) for different thermal resistances heatsink + contact.



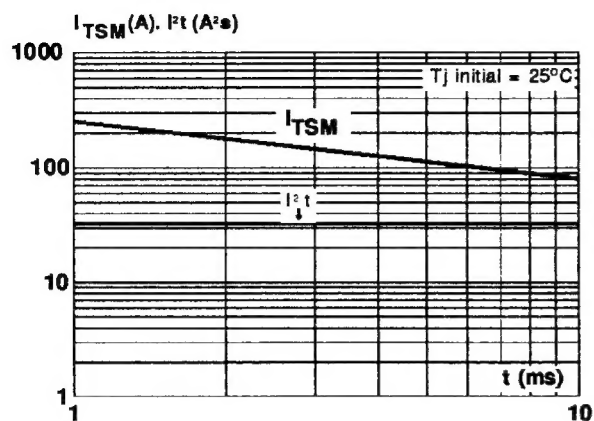
**Fig.4 :** Relative variation of thermal impedance versus pulse duration.



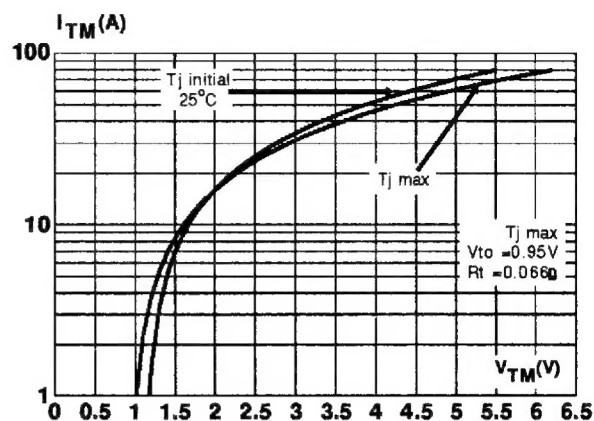
**Fig.6 :** Non repetitive surge peak on-state current versus number of cycles.



**Fig.7 :** Non repetitive surge peak on-state current for a sinusoidal pulse with width :  $t \leq 10\text{ms}$ , and corresponding value of  $I^2t$ .



**Fig.8 :** On-state characteristics (maximum values).



**PACKAGE MECHANICAL DATA**  
**TO220 Non-insulated (Plastic)**

REF.	DIMENSIONS					
	Millimeters			Inches		
	Typ.	Min.	Max.	Typ.	Min.	Max.
A			10.3			0.406
B		6.3	6.5	0.248	0.256	
C			9.1			0.358
D		12.7			0.500	
F			4.2			0.165
G			3.0			0.118
H		4.5	4.7		0.177	0.185
I		3.53	3.66		0.139	0.144
J		1.2	1.3		0.047	0.051
L			0.9			0.035
M	2.7			0.106		
N			5.3			0.209
N1	2.54			0.100		
O		1.2	1.4		0.047	0.055
P			1.15			0.045

Marking : type number

Weight : 1.8 g

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